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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,608	03/02/2005	Andreas Lucht	AFK-16214-WO-US	8772
30/996 7590 09/24/2010 ROBERT W. BECKER & ASSOCIATES 707 HIGHWAY 333 SUITE B TIJERAS, NM 87059-7507				
EXAMINER				
HAUGLAND, SCOTT J				
ART UNIT		PAPER NUMBER		
3654				
MAIL DATE		DELIVERY MODE		
09/24/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/522,608

**Applicant(s)**

LUCHT ET AL.

**Examiner**

SCOTT HAUGLAND

**Art Unit**

3654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2010 and 03 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-20 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-20, 22 and 28-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/3/10 has been entered.

### ***Election/Restrictions***

Claims 23-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/28/08.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-20, 22, and 28-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The language of claim 17, lines 26-27 reciting that the spiral toothing is in contact with the counter-bearing and the language of claim 17, lines 33-34 referring to friction between the counter-bearing and spiral toothing (which implies contact therebetween) appears to be inconsistent with claim 17, lines 20-21 and 31-32 and the disclosure.

The term "friction-increasing component" in claim 17, line 31 is unclear because it appears to imply a comparison and no basis for the comparison is claimed. It is not clear relative to what the friction is increased.

The language of claim 17, lines 34-35 is unclear and appears to be inconsistent with claim 17, lines 14-15, 19-25, and 28-30 because rotation of the carrier shaft in a reverse direction is claimed and disclosed as being prevented. The language appears to be additionally inconsistent with the disclosure since reverse rotation of the carrier shaft by the motor is not prevented.

Claim 22, lines 2-3 is unclear or inaccurate because the coefficient of friction depends on the characteristics of both contacting surfaces and other factors.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17, 22, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez (U.S. Pat. No. 5,005,777) in view of either Burr et al (U.S. Pat. No. 4,217,788) or Buchanan, Jr. (U.S. Pat. No. 5,605,071).

Fernandez discloses a belt shaft retractor having a blocking system (including portions of control system 28) and a tensioning device comprising: a carrier shaft 18, a spiral toothing 54 that is meshed with an external toothing 52 of the belt shaft 41, a fixed counter-bearing 16, an electric motor 26, and friction increasing means 56, 58. Friction between brush holder 56 and the spiral toothing increases as pressure between them increases as the spring 58 is compressed.

Fernandez does not disclose that the spiral toothing is not self-locking.

Burr et al teaches providing a spiral toothing 24 that is not self-locking for driving a gear 41. A brake 32 supplies resistance to prevent back-driving of the spiral toothing 24, allowing for worm and gear sets having different gear ratios.

Buchanan, Jr. teaches using non-self-locking worm gearing in a mechanism which results in locking due to additional friction in components of the mechanism other than the worm gearing (col. 1, line 50 - col. 2, line 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the belt retractor of Fernandez with spiral toothing that is not self-locking as taught by Burr et al or Buchanan, Jr. to accommodate other gear ratios or gear sizes or to increase efficiency.

With regard to claim 17, note that the level of friction between the counter-bearing and spiral toothing is sufficient to prevent reverse rotation of the carrier shaft in the modified apparatus of Fernandez.

With regard to claim 22, the coefficient of friction of the spring 58 and brush holder are inherently non-linear in some range of pressures.

With regard to claims 28, inherent friction in the motor would provide a holding moment and the motor is capable of being energized to apply a holding moment to prevent rotation of the spiral toothing against at least some loads.

With regard to claim 29, the motor control in 28 adjusts the holding moment generated by the motor as a function of the load on the belt shaft (e.g., note col. 8, lines 30-50).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez in view of either Burr et al or Buchanan, Jr. as applied to claim 17 above, and further in view of Kanada et al (U.S. Pat. No. 4,546,933).

Fernandez does not disclose miter-wheel gearing coupling a drive shaft of the electric motor to the spiral toothing.

Kanada et al teaches coupling a motor and spiral toothing in a seat belt retractor via miter-wheel gearing 42, 44.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fernandez with miter-wheel gearing coupling a drive

shaft of the electric motor to the spiral toothing as taught by Kanada et al to permit a more compact arrangement of the motor parallel to the belt shaft.

Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez in view of either Burr et al or Buchanan, Jr. and in view of Kanada et al as applied to claim 20 above, and further in view of Andrei-Alexandru et al (U.S. Pat. No. 4,652,781).

Fernandez does not explicitly disclose that there is a thrust bearing surrounded by a bearing housing between the spiral toothing 54 and gear 20 end of the carrier shaft 18.

Andrei-Alexandru et al teaches mounting a carrier shaft for a spiral toothing in a ball joint bearing (16, 17) in a bearing housing.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fernandez with a ball joint or cup-shaped bearing in a bearing housing formed by the seat belt retractor frame as taught by Andrei-Alexandru et al to support the carrier shaft 18 between spiral toothing 54 and gear 20 in a self-aligning manner.

### ***Response to Arguments***

Applicants' arguments filed 8/3/10 have been fully considered but they are not persuasive.

Applicants argue that the displaceable shaft toothing in Fernandez makes impossible the claimed function that with a reversal of rotational direction, a blocking of the rotational movement of the spiral toothing takes place. However, Fernandez specifically discloses (e.g., see the last four lines of the abstract) that rotational movement of the spiral toothing 54 is blocked when, by pulling the belt in the withdrawal direction, it is attempted to rotate the spiral toothing in the direction opposite to the direction in which the motor rotates the shaft when retracting the belt. Burr et al and Buchanan, Jr. suggest using self-blocking worm or spiral gearing in lieu of non-self-locking worm gearing. Fernandez would be operable with or without self-locking worm gearing. Note that applicants' worm gear must be axially displaceable for the load against disk 25 to vary with variation in axially loading of the worm gear.

Applicants argue that Burr et al does not suggest the addition of a friction-increasing component. However, Burr et al teaches a brake 32 that provides a friction force to prevent back-driving, i.e., to lock the worm against rotation in one direction.

Applicants argue that Buchanan is not related to the object of the invention of increasing friction such that rotation of a worm gear in a reverse direction is prevented. However, this is what is discussed at col. 1, line 50 - col. 2, line 1 of Buchanan.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT HAUGLAND whose telephone number is (571)272-6945. The examiner can normally be reached on Mon. - Fri., 10:00 am - 6:00 pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571) 272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Mansen/  
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/SJH/